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PRODUCT DATA SHEET

Sika® FastFix®-231 Permeable Bedding Concrete

BS 7533 compliant, free draining, highly permeable bedding mortar for paving units

PRODUCT DESCRIPTION

Sika® FastFix®-231 Permeable Bedding Concrete is a one-component, cement based, polymerised, bedding mortar for clay, concrete, natural stone or porcelain paving units. It can also be used to lay Cropped Granite Setts. The low water requirement enables the placed mortar to rapidly develop compressive strength, required to support the placed paving elements. The mix design creates a high permeability substrate (ideal for Sustainable Urban Drainage Systems) which is fully compliant with BS 7533.

USES

▪ Bedding of paving units for vehicular traffic.
▪ Bedding of slabs, pavers and setts for all pedestrianised zones.
▪ Prevents surface water forming.
▪ Can form part of Sustainable Urban Drainage Systems (SuDS).
▪ Helps alleviate flooding by providing a 'granular reservoir' for water.
▪ Inner city paving areas.
▪ Footpaths, courtyards, patios and carriageways.
▪ Tree pits.
▪ Can be used as part of three main permeable pavement systems:
  ▪ Full infiltration ('zero discharge').
  ▪ Partial infiltration.
  ▪ Full attentuation.

CHARACTERISTICS / ADVANTAGES

▪ High water permeability (free draining).
▪ Fully compliant with BS 7533 (Type 35 bedding mortar).
▪ Available in splash proof, 'contractor-friendly' 20 kg bags, ideal for site use.
▪ Pre-batched for simplicity: one-component only requiring a measured addtion of water.
▪ Wide range of application thicknesses achievable (30 to 75 mm).
▪ Prevents surface water developing, thereby reducing the likelihood of slippages.
▪ Large void capacity to act as a 'granular reservoir', for storm water management.
▪ May form part of Sustainable Urban Drainage Systems (SuDS).
▪ Can be used to alleviate flooding.
▪ Ability to be used in rainwater capture systems (e.g. for irrigation).
▪ Drainage 'problem solver' for areas with little, or no, gradient.
▪ When used for tree pits, it enables water to reach the roots, preventing them from migrating upwards in search of water.
▪ Utilises igneous rock, ensuring stability and durability.
▪ EuroClass A1 reaction to fire rating.

PRODUCT INFORMATION

Chemical Base	Cementitious, polymer modified, with igneous aggregate and synergistic chemicals.
Packaging	20 kg splash proof bags.

Shelf Life	6 months from date of manufacture for sealed 20 kg bags.
Storage Conditions	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +35 °C.
Appearance / Colour	Grey granular powder-coated aggregate.
Maximum Grain Size	D_{max}: 3 mm
Density	~2.0 kg/m³ - Fresh mixed density when compacted. ~1.9 kg/m³ - Dry product when compacted.

TECHNICAL INFORMATION

Compressive Strength	≥35 MPa
Modulus of Elasticity in Compression	(18000 ± 3500) MPa
Flexural Strength	≥4.5 MPa
Tensile adhesion strength	≥2.0 MPa
Shrinkage	≤ 0.09%
Water permeability	Horizontal = 7.7×10^{-4} m/s Vertical = 1.5×10^{-3} m/s NOTE: Product lightly tamped for compaction.

SYSTEM INFORMATION

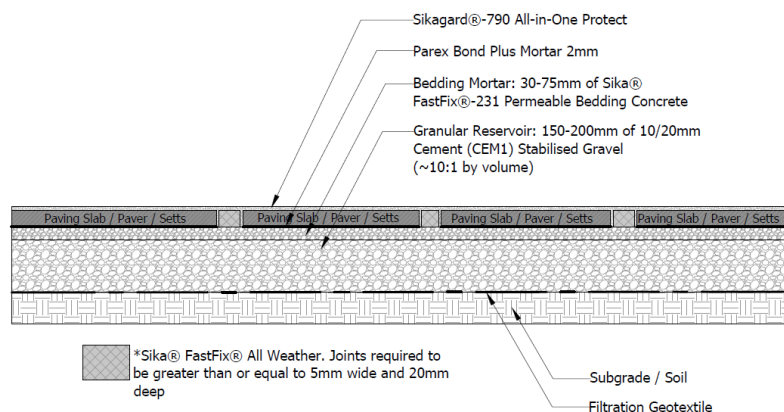|	
System Structure	Sika® FastFix®-231 Permeable Bedding Concrete is part of the Parex / Sika Streetscape System complying with the relevant parts of BS 7533 and comprising of: **Bedding Mortar:** Sika® FastFix®-231 Permeable Bedding Concrete **Priming Scrub Coat:** Parex Bond Plus Mortar **Pointing / Jointing Mortar:** Parex Granatech Parex Granatech 40 Fine **NOTE:** Sika® FastFix® All Weather can be used as a pointing / jointing mortar to offer increased permeability, but (as it does not comply with the requirements of BS 7533) should only be used for lightly foot-trafficked areas (e.g. patios, pavements and paths). The drawing below shows an example of the construction detail for a domestic patio area:

Sika Permeable Paving System

Sikagard®-790 All-in-One Protect
Parex Bond Plus Mortar 2mm
Bedding Mortar: 30-75mm of Sika® FastFix®-231 Permeable Bedding Concrete
Granular Reservoir: 150-200mm of 10/20mm Cement (CEM1) Stabilised Gravel (~10:1 by volume)
Paving Slab / Paver / Setts
*Sika® FastFix® All Weather. Joints required to be greater than or equal to 5mm wide and 20mm deep
Subgrade / Soil
Filtration Geotextile

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APPLICATION INFORMATION

Yield	~10.7 litres per 20 kg bag.
Layer Thickness	30 mm minimum / 75 mm maximum
Ambient Air Temperature	+5 °C minimum / +35 °C maximum
Mixing Ratio	1.36 litres of water per 20 kg bag or 6.8%.
Substrate Temperature	+5 °C minimum / +35 °C maximum
Pot Life	~30 minutes at 20 °C

VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Surface Preparation:

Contact surfaces must be sound, clean and provide a good mechanical key. Remove any loose material, laitance, plaster, paint, oily deposits, etc. Paving units surfaces should be free of dust and contamination. Substrates (if feasible) and paving units should be pre-wetted prior to application of **Parex Bond Plus Mortar** scrub coat.

Priming:

Prepare a priming scrub coat of **Parex Bond Plus Mortar**. An application thickness of 4 mm has been found to achieve the necessary bond / tensile adhesion strength for all applications. Prime the prepared substrate (if possible - installing onto an open-graded sub-base, such as Type 3 or Type 1X, it may not be feasible to prime) and the underside of the paving units with the priming scrub coat using a stiff bristle brush. Apply Sika® FastFix®-231 Permeable Bedding Concrete onto the primed (if achievable - it may not be practicable to prime some granular sub-bases) substrate 'wet-on-wet', and bed the primed paving units onto Sika® FastFix®-231 Permeable Bedding Concrete, before the priming coat has dried. For further information on mixing and application of **Parex Bond Plus Mortar**, please refer to the most up to date Product Data Sheet.

MIXING

Ideally, mixing of Sika® FastFix®-231 Permeable Bedding Concrete requires a forced action mixer such as a Rojo or Creteangle (using a drill and paddle can be difficult due to the granularity of the Product).
Pour the recommended amount of clean water into a suitable, clean mixing vessel. Gradually add the powder and mix thoroughly until a homogeneous product is achieved. Once mixed, apply within the pot life. Additional water should not be added to 'revive' the product past its pot life.
Small quantities of Sika® FastFix®-231 Permeable Bedding Concrete can be mixed using a suitable drill and paddle, however the powder mix must be added slowly to prevent inconsistent mixing. Ensure the paddle mixes from the bottom up, confirming before laying the Product that all powder has been suitably mixed (i.e. scrape the insides of the mixing vessel and remix if necessary).

APPLICATION

Apply the mixed Sika® FastFix®-231 Permeable Bedding Concrete to the primed substrate (if applicable - installing onto an open-graded sub-base, such as Type 3 or Type 1X, may not be feasible) before the priming coat has dried. Lightly compact the Sika® FastFix®-231 Permeable Bedding Concrete to ensure adequate contact with the underlying primed surface. It is advisable to dip small paving units (e.g. Setts and Cubes) in water to clean them prior to priming. For larger paving units (e.g. slabs), clean off with fresh water. Prime the back of the paving units being used and place the units onto the wet Sika® FastFix®-231 Permeable Bedding Concrete and adjust the levels as required, using rubber-headed mallets (white rubber will not mark and stain the paving units).
NOTE: A priming layer of 4 mm has been found to achieve adequate bond / tensile adhesion strength for all applications.

CURING TREATMENT

In temperate ambient conditions, no special curing is required. In severe drying conditions of high temperatures and high wind, the paved surface should be lightly sprayed with water to assist with temperature control of the paving surface and provide water for additional curing of the Sika® FastFix®-231 Permeable Bedding Concrete.

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CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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